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REMARKS

By the present amendment, claims 18, 25, 28, and 33 have been amended, and claim 26 has been canceled. Thus, after the present amendment, claims 18-25 and 27-37 remain in the present application. Reconsideration and allowance of outstanding claims 18-25 and 27-37 in view of the above amendments and following remarks are requested.

A. Rejections of Claim 25 under 35 USC §112, ¶ 2

The Examiner has rejected claim 25 under 35 USC §112, ¶ 2, asserting that claim 25 is indefinite. Applicants have amended claim 25 to insert the word "transistor" after the first occurrence of the phrase "electronic inductor" in the claim. Applicants respectfully submit that the rejection of claim 25 under 35 USC §112, ¶ 2, should be withdrawn.

B. Rejections of Claims 18-22, 24, 25, 27-30, and 32-37 under 35 USC §102(b)

The Examiner has rejected claims 18-22, 24, 25, 27-30, and 32-37 under 35 USC §102(b) as being anticipated by U.S. Patent Number 5,734,703 to Hiyoshi ("Hiyoshi"). For the reasons discussed below, Applicants respectfully submit that the present invention, as defined by amended independent claims 18, 25, and 33, is patentably distinguishable over Hiyoshi.

Embodiments according to the present invention are directed to a telephone interface circuit for linearly varying a line current of a telephone line. According to

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various embodiments of the invention, an electronic inductor circuit comprises an operational amplifier and an inductor transistor configured in combination to act as a voltage-controlled current source (VCCS). The operational amplifier can provide the linear variation in the output, achieve a high peak-to-peak signal requirement on the telephone line in response to a small input voltage signal (advantageously allowing for the use of low voltage power supplies), eliminate the need for an on-hook switch (advantageously reducing cost and size requirements), and allow for smaller and less expensive transmit signal sources.

More specifically, as disclosed in the present application, operational amplifier 52, for example, linearizes the voltage signal at the emitter of transistor 54 through the negative feedback input. This causes the line current to swing linearly. If the collector voltage is well above the emitter voltage, the harmonic content or distortion of the transmitted signal is at least 80 dB below the fundamental signal level in one embodiment. This is an acceptable level of distortion for high-speed modem applications and a significant improvement over conventional approaches. See, for example, present application at page 5.

In order to further illustrate aspects of the present invention, Applicants have amended independent claims 18, 25, and 33 to include language indicating that the telephone interface circuit is configured to linearly vary a line current of the telephone line.

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In contrast, Hiyoshi is directed to a hybrid circuit and data communication apparatus. In Hiyoshi, a balancing bridge circuit is provided between a four-wire circuit and a two-wire circuit. Compact photo-couplers are utilized, thus allowing the transmitting terminal and the receiving terminal to be grounded together. Common-mode noise reaching the terminals is not transmitted to the receiving terminals.

Hiyoshi does teach an amplifier in the transmit stage. See, for example, Figure 27 of Hiyoshi. However, Hiyoshi does not disclose, teach, or suggest a signal driving stage that is configured to linearly vary a line current of a telephone line.

For the foregoing reasons, Applicants respectfully submit that the present invention as defined by amended independent claims 18, 25, and 33 is not taught, disclosed, or suggested by the art of record. Thus, amended independent claims 18, 25, and 33 are patentably distinguishable over the art of record. As such, the claims depending from amended independent claims 18, 25, and 33 are, *a fortiori*, also patentable for at least the reasons presented above and also for additional limitations contained in each dependent claim.

C. Rejections of Claims 23 and 31 under 35 USC §103(a)

The Examiner has rejected claims 23 and 31 under 35 USC §103(a) as being obvious with respect to Hiyoshi and U.S. Patent Number 4,796,295 to Gay, et al. ("Gay"). Applicants respectfully submit that claims 23 and 31 depend from amended independent claims 18 and 25, respectively, and thus, claims 23 and 31 should be allowed at least for


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the same reasons discussed above in conjunction with patentability of amended independent claims 18 and 25.

D. Conclusion

Based on the foregoing reasons, the present invention, as defined by amended independent claims 18, 25, and 33, and the claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. Thus, outstanding claims 18-25 and 27-37 are patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing reasons, an early Notice of Allowance directed to all claims 18-25 and 27-37 remaining in the present application are respectfully requested.

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